

Monthly Marine Biotoxin Report November 2004

Technical Report No. 04-25

INTRODUCTION:

This report provides a summary of biotoxin activity for the month of November 2004. Ranges of toxin concentrations are provided for the paralytic shellfish poisoning (PSP) toxins and for domoic acid (DA). Estimates are also provided for the distribution and relative abundance of *Alexandrium*, the dinoflagellate that produces PSP toxins, and *Pseudo-nitzschia*, the diatom that produces domoic acid. Summary information is also provided for any quarantine or health advisory that was in effect during the reporting period.

Please note the following conventions for the phytoplankton and shellfish biotoxin distribution maps: (i) All estimates for phytoplankton relative abundance are qualitative, based on sampling effort and percent composition; (ii) All toxin data are for mussel samples, unless otherwise noted; (iii) All samples are assayed for PSP toxins; DA analyses are performed as needed (i.e., on the basis of detected blooms of the diatoms that produce DA); (iv) Please refer to the appropriate figure key for an explanation of the symbols used on the maps.

Southern California Summary:

Paralytic Shellfish Poisoning

Alexandrium was only observed along the San Luis Obispo coast in November (Figure 1). The distribution and relative abundance of

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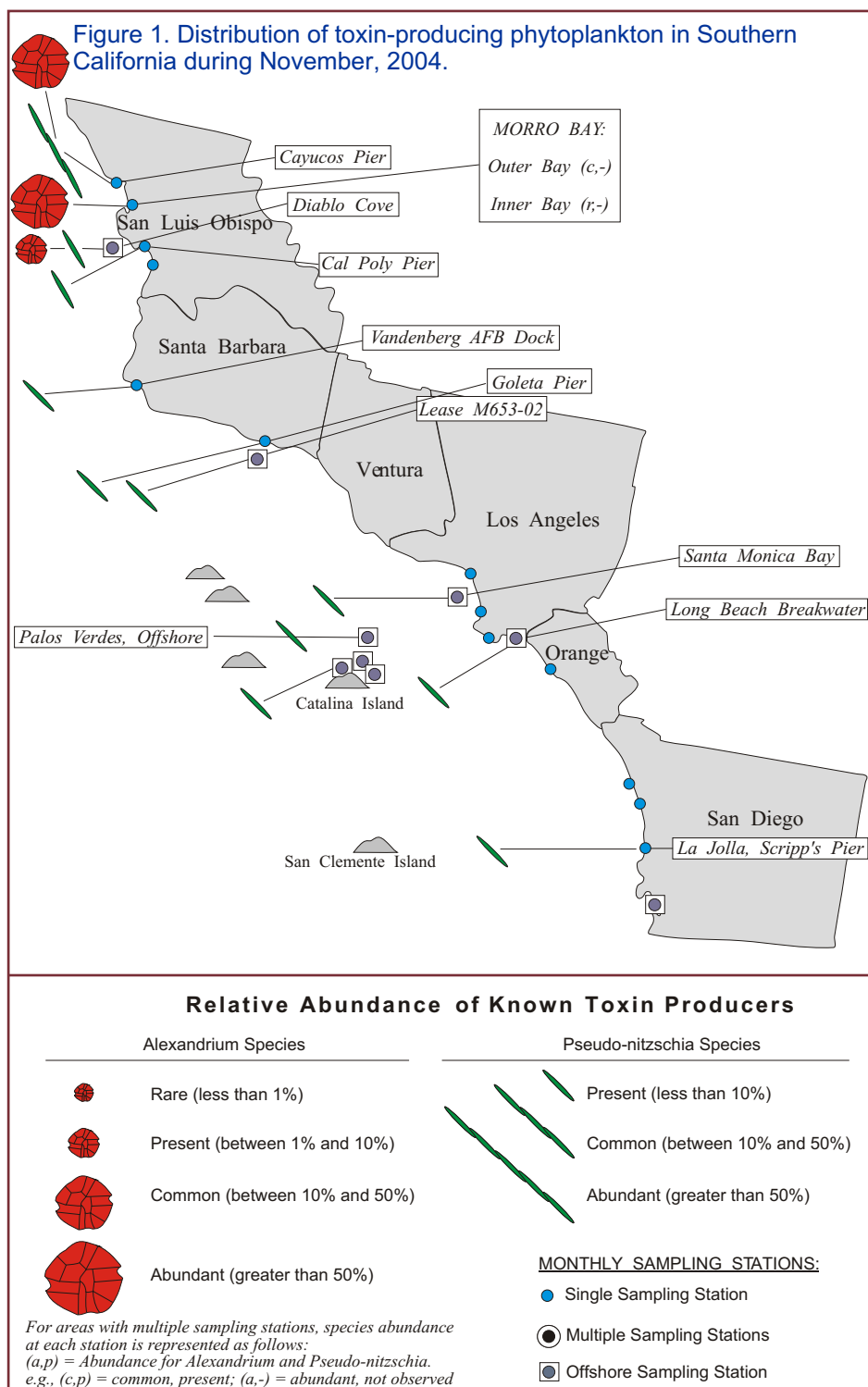
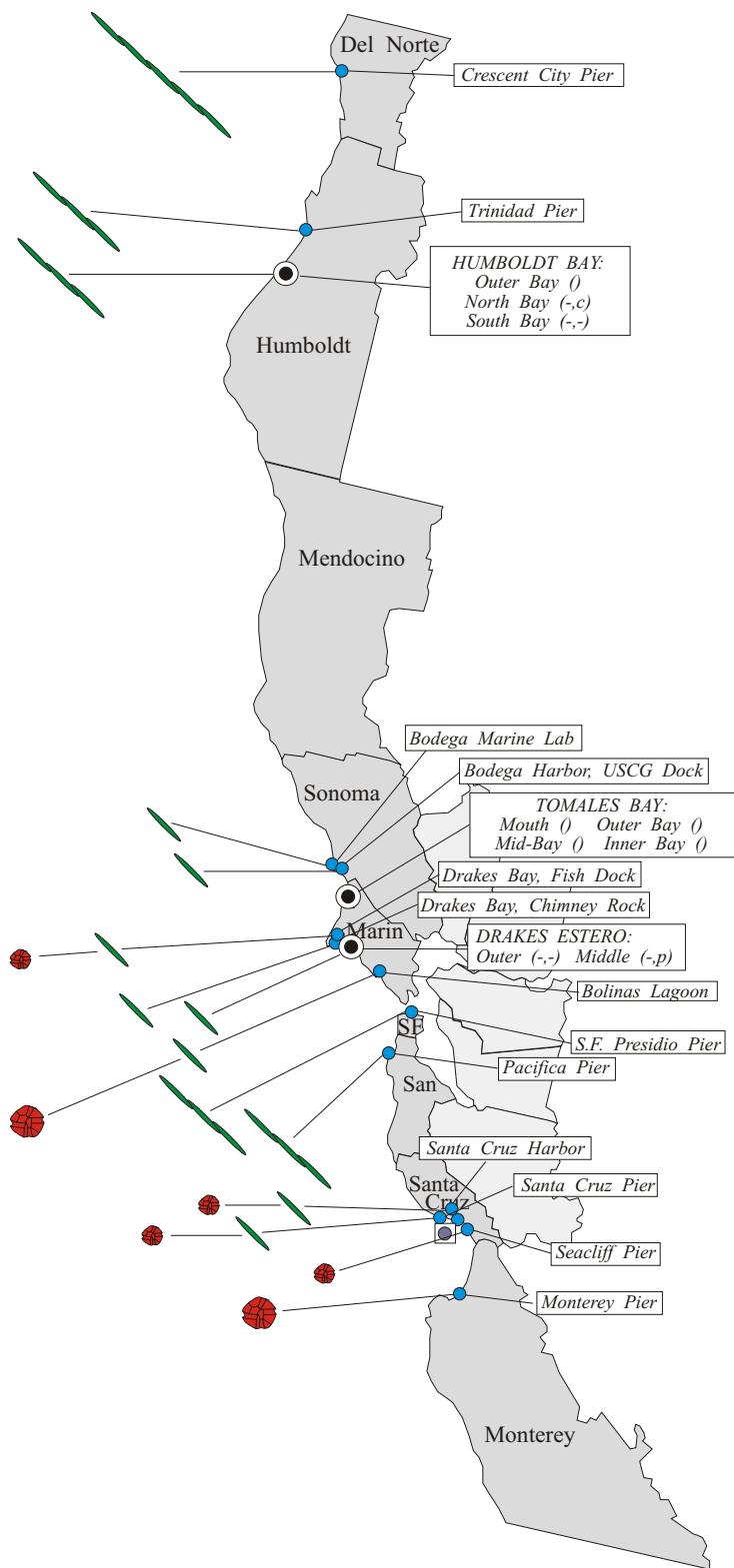


Figure 2. Distribution of toxin-producing phytoplankton in Northern California during November, 2004.



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Alexandrium increased at sites north of Point San Luis and decreased south of this location. The highest relative abundance of this dinoflagellate was observed inside Morro Bay and farther north at Cayucos.

Low concentrations of PSP toxins continued to be detected inside Morro Bay (Figure 3) but were absent at all other Southern California sampling sites.

Domoic Acid

Pseudo-nitzschia was observed along the entire Southern California coast in November (Figure 1). The relative abundance was lower in most locations than observed in October.

Non-toxic Species

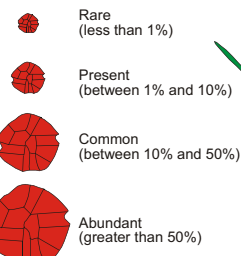
The San Luis Obispo coast was dominated by a variety of dinoflagellates throughout November. *Cochlodinium* remained abundant at Pismo Pier and was common at Avila and Morro Bay. *Ceratium* spp., *Lingulodinium polyedrum*, *Prorocentrum micans*, and *Gymnodinium sanguineum* were also common in this region.

A mix of dinoflagellates and diatoms were observed at sites south of Point Conception. *Cochlodinium* was common at one Santa Barbara site. Common dinoflagellates included *Lingulodinium polyedrum* and *Ceratium* spp. The diatom *Bacteriastrum*,

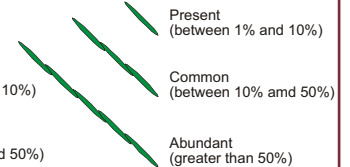
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Relative Abundance of Known Toxin Producers

Alexandrium Species



Pseudo-nitzschia Species



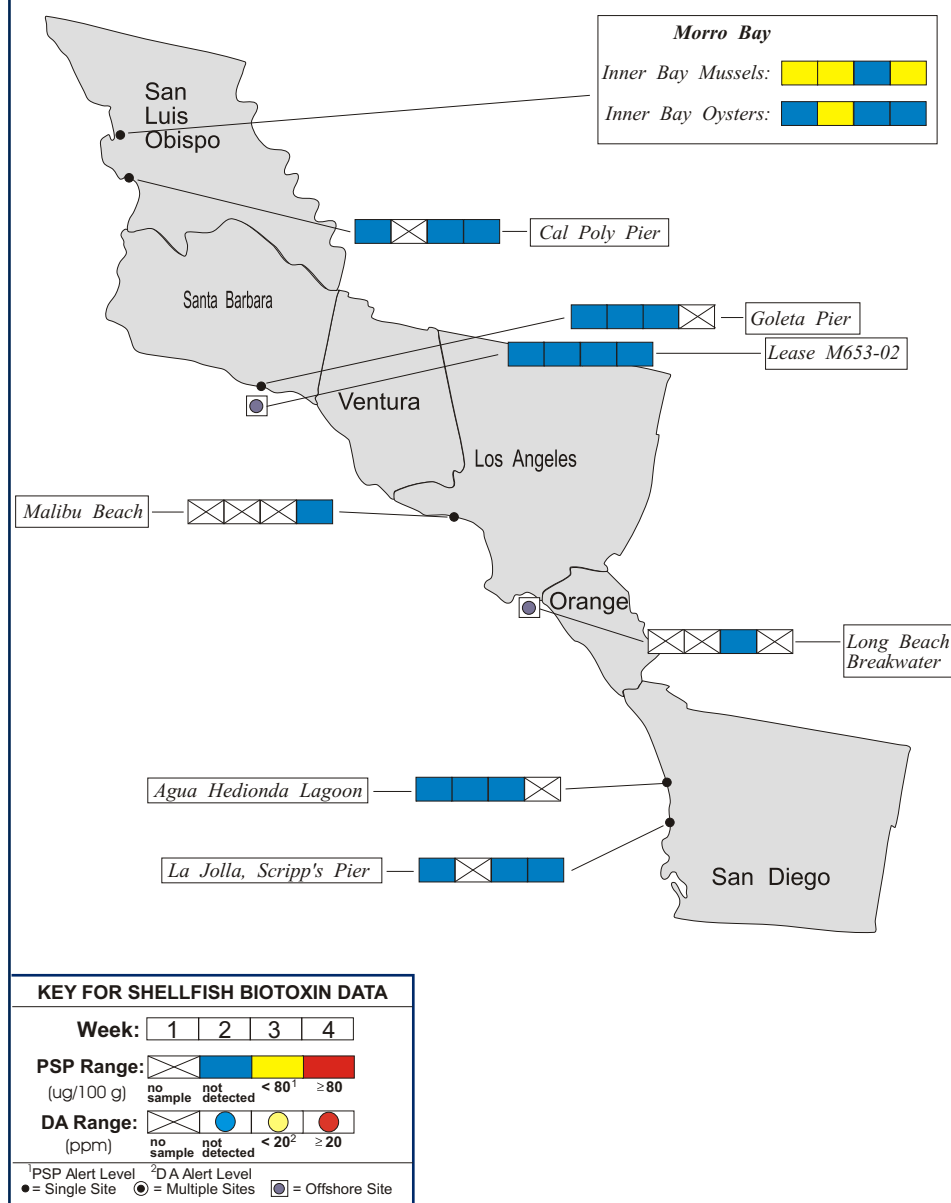
MONTHLY SAMPLING STATIONS:

- Single Sampling Station
- Multiple Sampling Stations
- Offshore Sampling Station

For areas with multiple sampling stations, species abundance at each station is represented as follows:

(A,P) = Abundance for *Alexandrium* and *Pseudo-nitzschia*.
e.g., (c,p) = common, present; (a,-) = abundant, not observed

Figure 3. Distribution of shellfish biotoxins in Southern California during November, 2004.



(Continued from Page 2)

Chaetoceros, and *Rhizosolenia* was also common.

Lingulodinium polyedrum was abundant along the Los Angeles coast at Playa del Rey and Long Beach, along with a variety of other dinoflagellates. The diatom *Hemialus* was also common. Farther offshore near Catalina Island there was a greater number of diatoms observed, including *Chaetoceros*, *Bacteriastrum*, and *Dactylosolen*.

Ceratium furca was abundant in Orange County, and sites in San Diego County contained a mix of dinoflagellates (*Lingulodinium polyedrum*, *Ceratium* spp., *Prorocentrum micans*) and diatoms (*Chaetoceros*, *Bacteriastrum*).

Northern California Summary:

Paralytic Shellfish Poisoning

Alexandrium was observed at a number of Northern California sites in November (Figure 2). There was an overall decrease in the relative abundance of *Alexandrium* compared to observations in October.

Low concentrations of PSP toxins were detected at several locations along the Northern California coast in November (Figure 4). Toxins were detected from Santa Cruz northward through Marin

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The Marine Biotoxin Monitoring and Control Program, managed by the California Department of Health Services, is a state-wide effort involving a consortium of volunteer participants. The shellfish sampling and analysis element of this program is intended to provide an early warning of shellfish toxicity by routinely assessing coastal resources for the presence of paralytic shellfish poisoning (PSP) toxins and domoic acid.

The Phytoplankton Monitoring Program is a state-wide program designed to detect toxin producing species of phytoplankton in ocean water before they impact the public. The phytoplankton monitoring and observation effort can provide an advanced warning of a potential toxic bloom, allowing us to focus sampling efforts in the affected area before California's valuable shellfish resources or the public health is threatened.

For More Information Please Call:
(510) 412-4635

For Recorded Biotoxin Information Call:
(800) 553-4133

(Continued from Page 3)

County. By the last week of the month PSP toxins were no longer detected.

Domoic Acid

Pseudo-nitzschia was observed along most of the Northern California coast in November (Figure 2). The relative abundance remained high in Crescent City (Del Norte County) throughout the month. This diatom was also common in relatively high numbers at sites in Humboldt County as well. A very low concentration of domoic acid (1.7 ppm) was detected in sentinel mussels inside Humboldt Bay during the first week of November.

Non-toxic Species

The northern counties of Humboldt and Del Norte were dominated by diatom species, including *Skeletonema*, *Ditylum*, and *Chaetoceros*. Dinoflagellates remained dominant along the coast between Marin and Monterey counties. The most abundant dinoflagellates included *Heterocapsa* (Drakes Bay), *Prorocentrum* (Bollinas Lagoon, Santa Cruz Harbor), *Cochlodinium* (Santa Cruz Pier), and *Gymnodinium sanguineum* (Santa Cruz, Monterey).



Figure 4. Distribution of shellfish biotoxins in Northern California during November, 2004.

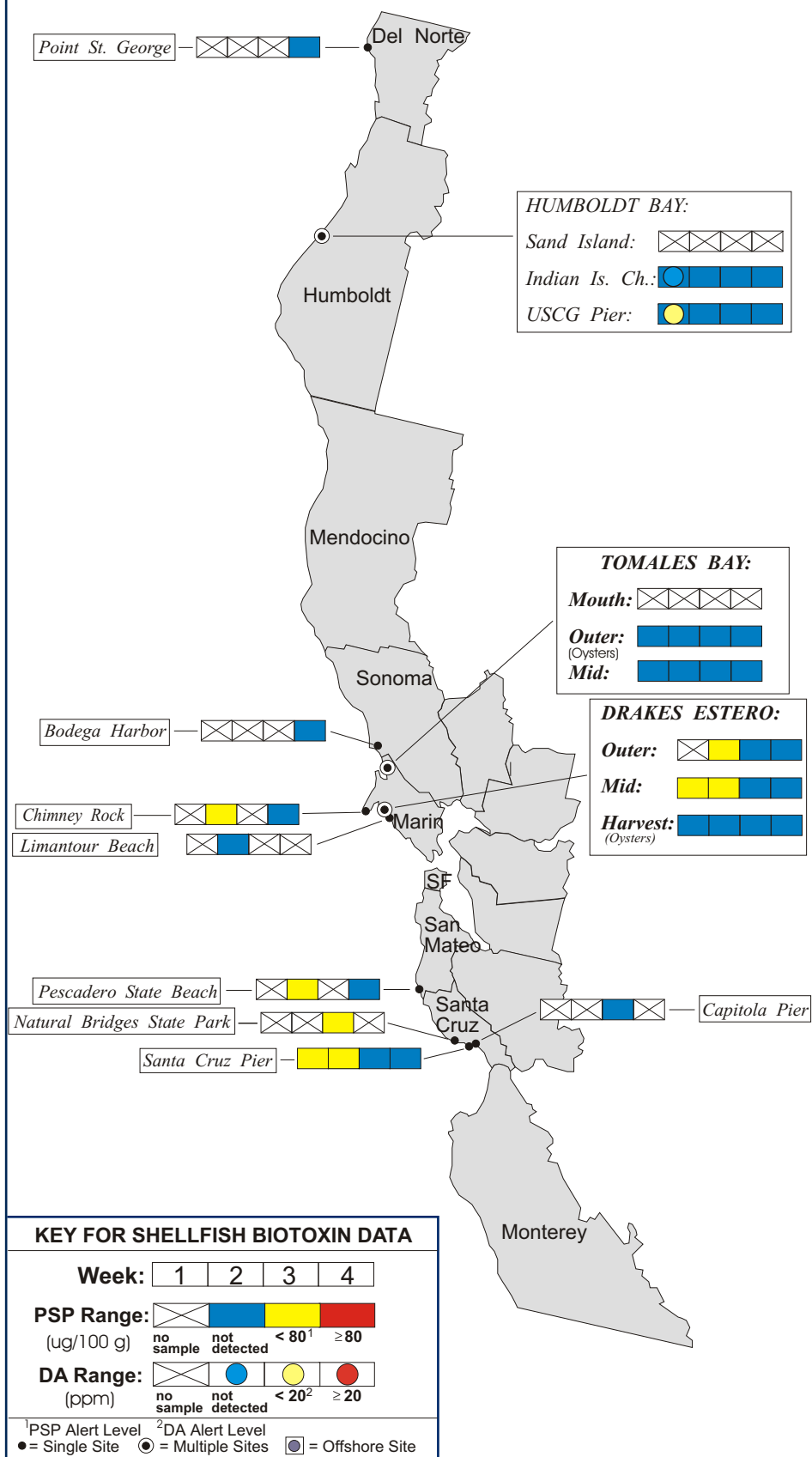


Table 1. California Marine Biotoxin Monitoring Program participants submitting shellfish samples during November, 2004.

COUNTY	AGENCY	# SAMPLES
Del Norte	Del Norte County Health Department	1
Humboldt	Coast Seafood Company	10
Mendocino	None Submitted	
Sonoma	DHS Marine Biotoxin Monitoring Program	1
Marin	Cove Mussel Company	5
	DHS Marine Biotoxin Monitoring Program	2
	DHS Volunteer (Marjorie Siegal)	1
	Hog Island Oyster Company	5
	Johnson Oyster Company	19
	Marin Oyster Company	4
San Francisco	None Submitted	
San Mateo	San Mateo County Environmental Health Department	2
Santa Cruz	U.C. Santa Cruz	4
	Santa Cruz County Environmental Health Department	2
Monterey	None Submitted	
San Luis Obispo	Williams Shellfish Company	9
	U.C. Santa Barbara Marine Science Institute	3
Santa Barbara	Santa Barbara Mariculture Company	10
	U.C. Santa Barbara Marine Science Institute	3
Ventura	None Submitted	
Los Angeles	Los Angeles County Health Department	1
	Aquarium of the Pacific Long Beach	1
Orange	None Submitted	
San Diego	Carlsbad Aquafarms, Inc.	3
	Scripps Institution of Oceanography	3

QUARANTINES:

The health advisory issued by the State Health Director on June 10 remained in effect. This advisory warned consumers to avoid eating sport-harvested shellfish from Humboldt and Del Norte counties and was the result of dangerous levels of domoic acid in razor clams collected from this region. The persistent high relative abundance of *Pseudo-nitzschia* in November reinforced the continued need for the advisory.

The annual quarantine on the sport-harvesting of mussels was rescinded at midnight on October 31 as scheduled. This annual quarantine had gone into effect early, beginning on April 23 instead of the normal May 1 start date.

The annual mussel quarantine applies only to sport-harvested mussels along the entire California coastline, including all bays and estuaries. This quarantine does not affect the commercial shellfish growing areas in California. All commercial shellfish growers certified by the State of California are required to submit routine samples for biotoxin analysis, allowing us to closely monitor for the occurrence of any toxin. Harvesting closures are imposed if toxin levels reach the federal alert level.

Consumers of Washington clams, also known as butter clams, are cautioned to eat only the white meat. Persons taking any clams or scallops are advised to remove and discard the dark parts (i.e., the digestive organs or viscera).

Contact the "Biotoxin Information Line" at 1-800-553-4133 or (510) 412-4643 for a current update on marine biotoxin activity.



Table 2. Agencies, organizations and volunteers participating in marine phytoplankton sample collection during November, 2004.

COUNTY	AGENCY	# SAMPLES
Del Norte	Del Norte County Health Department	2
Humboldt	Coast Seafood Company	5
	DHS Volunteer (Jacki Riley)	3
Mendocino	None Submitted	
Sonoma	Bodega Marine Laboratory	1
	DHS Marine Biotoxin Monitoring Program	1
Marin	CDHS Volunteers (Brent Anderson, Mary Von Tolsdorf)	6
	DHS Marine Biotoxin Monitoring Program	2
	Johnson Oyster Company	8
Contra Costa	DHS Marine Biotoxin Monitoring Program	1
San Francisco	CDHS Volunteer (Eugenia McNaughton)	2
San Mateo	San Mateo County Environmental Health Department	2
Santa Cruz	Santa Cruz County Environmental Health Department	3
	U.C. Santa Cruz	5
	California Department of Parks and Recreation	3
	San Lorenzo Valley High School	1
Monterey	CDHS Volunteer (Jerry Norton)	2
San Luis Obispo	CDHS Volunteers (Renee and Auburn Atkins), Bill Schwebel)	4
	Morro Bay National Estuary Program	4
	Tenera Environmental	3
	U.C. Santa Barbara Marine Science Institute	4
Santa Barbara	U.C. Santa Barbara Marine Science Institute	6
	Santa Barbara Mariculture Company	5
	Vanderberg Air Force Base	2
Ventura	None Submitted	
Los Angeles	Guided Discoveries (CTSE)	4
	Catalina Island Marine Institute	1
	Los Angeles County Sanitation District	2
	Los Angeles County Health Department	1
	City of Los Angeles Environmental Monitoring Division	3
	Aquarium of the Pacific Long Beach	1
Orange	Orange Coast College	1
San Diego	CDHS Volunteer (Paul Sims, Jeff Kermod)	4
	Scripps Institute of Oceanography	4

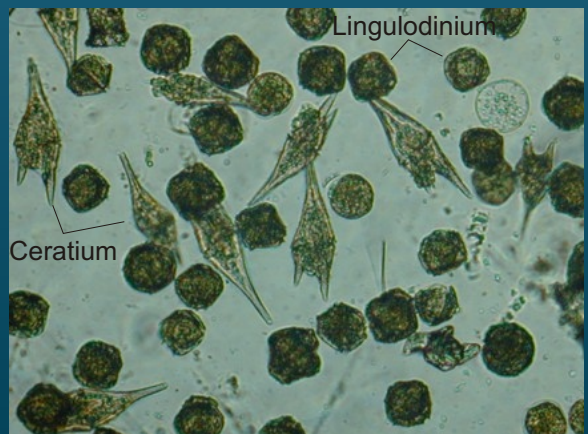
PHYTOPLANKTON GALLERY



The diatom *Ditylum* was common in some Northern California locations.



The unarmored dinoflagellate *Gymnodinium* was common at several sites along the California coast.



The dinoflagellate *Lingulodinium* was abundant along the Southern California coast.